

### **REMARKS/ARGUMENTS**

Claims 6-12 are pending in the present application. Applicants respectfully request reconsideration of the pending claims in view of the following discussion.

Claims 6-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.K. Patent No. 1,190,459 issued to General Dynamics Corporation ("the GDC reference") in view of United States Patent No. 4,888,815 to Ahlemeyer et al. ("the Ahlemeyer reference") and in view of United States Patent No. 4,115,737 to Hongu et al. ("the Hongu reference").

Applicants respectfully submit that claims 6-12 are in condition for allowance for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art **teach or suggest each element of the claim**, but the prior art must also **suggest combining the elements in the manner contemplated by the claim**. See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. M.P.E.P. §2142. To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, **to modify or combine the references** and that, when so modified or combined, the prior art **teaches or suggests all of the claim limitations**. M.P.E.P. §2143. Applicants respectfully submit that these criteria for obviousness are not met here.

Claim 6 relates to a radio receiver device and recites, among other things, a changeover device and a mixing oscillator for converting a received high-frequency signal into a defined intermediate frequency. In accordance with an operation of the changeover device, the mixing oscillator of claim 6 is able to be changed over in a tuning range to one of a first variably tunable tuning stage and a second variably tunable tuning stage in such a way

that for a first receiving range of the first variably tunable tuning stage an **oscillation frequency of the first variably tunable tuning stage is set above a frequency to be received by a quantity of the defined intermediate frequency**, and that for a second receiving range of the second variably tunable tuning unit an **oscillation frequency of the second variably tunable tuning stage is set below the frequency to be received by the quantity of the defined intermediate frequency**.

Before presenting a detailed comparison of the claimed invention and the applied prior art references, a brief overview of the present invention is deemed helpful here. The present invention provides the advantage that it enables the radio receiver to be operated in different countries in which different band boundaries are defined for the reception of radio signals of a particular type, for example VHF radio signals. The mixing oscillator is constructed so as to be able to be changed over in such a way that, for a receiving range of a first tuning unit, its frequency can be adjusted below the receiving frequency by the intermediate frequency, and for a receiving range of a second tuning unit its frequency can be adjusted above the receiving frequency by the quantity of the intermediate frequency. Through this selection of the frequency positions of the mixing oscillator, disturbing influences due to the oscillator frequencies can be reduced. In contrast, as explained in further detail below, the applied references do not teach an oscillation frequency of a first variably tunable tuning stage being set *above* a frequency to be received by *a quantity of the defined intermediate frequency*, and an oscillation frequency of the second variably tunable tuning stage being set *below* the frequency to be received by *the quantity of the defined intermediate frequency*.

In support of the rejection, the Examiner cites a section of the GDC references that apparently relates to a phase locked loop being “automatically tuned to the proper frequency for the signal to be received,” (GDC reference, p. 3, ll. 18 - 20), and the Examiner states that the GDC reference “teaches a mult-band system with a PLL system that selects the frequency band through a choice of one of a plurality (two) oscillators where the selected oscillator is

tuned to be mixed with the incoming signal ... to yield a selected defined IF output frequency.” Even if one assumes for the sake of argument that this interpretation of the GDC reference by the Examiner is correct (with which conclusion Applicants do not agree), it is respectfully submitted that there is no indication in the GDC reference or any other applied reference that an oscillation frequency of a first variably tunable tuning stage is set *above* a frequency to be received by *a quantity of the defined intermediate frequency*, and that an oscillation frequency of the second variably tunable tuning stage is set *below* the frequency to be received by *the quantity of the defined intermediate frequency*, as explained in further detail below. Indeed, the Examiner concedes that “GDC does not teach a single mixing oscillator for converting a high frequency first and second band into a defined IF.” (Office Action, p. 4).

The phase locked loop discussed in the GDC reference apparently utilizes a coarse tuning voltage generator that generates “a staircase voltage which increases in magnitude at a rate which depends upon the difference in frequency between the reference signal frequency and the variable frequency oscillator output frequency.” (GDC reference; p. 6, ll. 70 - 74). This frequency difference is described in the GDC reference as the reference frequency minus a frequency of the variable frequency oscillator. (GDC reference; p. 3, l. 122 - p. 4, l. 3). As the GDC reference states, “[t]he low pass filter 68 passes only the difference frequency  $(f_r - f_v)$  and applies it to an amplifier 66.” (GDC reference; p. 4, ll. 1 - 3). Therefore, the frequency of the voltage signal output by the voltage generator is determined based only on this difference frequency. In other words, the difference frequency  $(f_r - f_v)$  is used to determine the frequency output by the voltage generator, while the frequency  $(f_r + f_v)$  is filtered out. (GDC reference; p. 3, l. 122 - p. 4, l. 3). Therefore, the GDC reference does not discuss, or even suggest, both 1) an oscillation frequency of a first variably tunable tuning stage is set *above* a frequency to be received by a quantity of the defined intermediate frequency, *and* 2) that an oscillation frequency of the second variably tunable tuning stage is set *below* the frequency to be received by the quantity of the defined intermediate frequency. In the GDC reference, only one frequency difference is utilized to lock the phase on the

reference frequency, and therefore the frequency of the variable frequency oscillator may be set above or below, **but not both above and below**, the reference frequency.

The addition of the Ahlemeyer reference and the Hongu reference fails to cure this critical deficiency of the GDC reference as applied against claim 6. Though the Ahlemeyer reference apparently discusses a single mixing oscillator, there is no indication that the mixing oscillator has the features recited in claim 6. In particular, the cited sections of the Ahlemeyer reference do not disclose, or even suggest, that an oscillation frequency of the first variably tunable tuning stage is set above a frequency to be received by a quantity of the defined intermediate frequency, and that an oscillation frequency of the second variably tunable tuning stage is set below the frequency to be received by the quantity of the defined intermediate frequency. The Hongu reference is cited by the Examiner for merely teaching "a receiving antenna connected to a first and second tuned stage of a multiband tuner, but with switched band selection prior to the first stage." The Hongu reference clearly does not disclose or suggest that an oscillation frequency of the first variably tunable tuning stage is set above a frequency to be received by a quantity of the defined intermediate frequency, and that an oscillation frequency of the second variably tunable tuning stage is set below the frequency to be received by the quantity of the defined intermediate frequency.

Since the applied references do not disclose or suggest the features of claim 6, the combination of the applied references cannot render obvious the subject matter of claim 6. Claims 7-12 depend from claim 6 and are therefore allowable for at least the same reasons provided in connection with claim 6. For at least the above reasons, withdrawal of the rejection of claims 6-12 under 35 U.S.C. §103(a) is hereby respectfully requested.

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Reply to Office Action of May 19, 2004

**CONCLUSION**

Applicants respectfully submit that all of the pending claims of the present application are now in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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